Table S1. Differentiation of DNA modifications, epigenetic mark vs. DNA damage

	Epigenetic marks			**DNA damage**			
	General	Methyl-cytosine	Youth-DNA-GAP	General	Methyl-cytosine	8-OHdG	Pathologic DSB
Source/cause	Cellular enzyme	DNMTs	HMGB1	Environ-mental hazard	Methylating agents	Oxidative stress	Radiation, conversion of SSB during DNA replication
Function/Effect	Physiologic functions	Gene control, genomic stability	DNA protection	Promote DDR, halt cell proliferation, and hasten senescence, cell death, mutation, and cancer.			
Associated proteins	Producers and maintenances	DNMTs and methylation-associated proteins	SIRT1	DNA repair proteins and DNA repair-associated proteins			
Presentation/location	Depend on cause, function, and cell types	Gene promoter or intersperse repetitive sequence & heterochromatin	Human – methylated DNA & deacetylated histone Yeast – sequence specific DNA	Depend on DNA environment, types of DNA damage, and repair. Mostly random. Generally, immediately repaired.			
DNA detection	Presentation and genomic distribution based on experimental conditions						